

CLAIMS

*Subt. 5 ET* 1. A method of immunizing a vertebrate, said method comprising administering to a vertebrate a DNA transcription unit comprising DNA encoding a desired antigen operatively linked to a promoter region, whereby a humoral immune response, a cell-mediated immune response or both is elicited against the desired antigen.

5 2. The method of Claim 1, wherein the DNA transcription unit is of nonretroviral origin.

10 3. The method of Claim 2, wherein the desired antigen is capable of eliciting a protective immune response against an infectious agent.

*Subt. C* 4. The method of Claim 3, wherein the infectious agent is a virus.

15 5. The method of Claim 4, wherein the virus is an influenza virus.

6. The method of Claim 5, wherein the desired antigen is an influenza virus hemagglutinin.

20 7. The method of Claim 2, wherein the vertebrate is a mammal.

5 8. The method of Claim 7, wherein the mammal is a human.

6. The method of Claim 2, wherein the DNA transcription unit, in a physiologically acceptable carrier, is administered to a vertebrate through a route of administration chosen from the group consisting of 5 intranasal, intravenous, intramuscular, intraperitoneal, intradermal and subcutaneous.

7. The method of Claim 2, wherein the DNA transcription 10 unit is administered to a vertebrate by contacting the DNA transcription unit in a physiologically acceptable carrier with a mucosal surface of the vertebrate.

*Sub 1 1/2*  
8. 11. A method of immunizing a vertebrate against an infectious agent, said method comprising administering to a mucosal surface of a vertebrate a DNA transcription unit comprising DNA encoding a desired antigen operatively linked to a promoter region, in a physiologically acceptable carrier, thereby eliciting a humoral or cell-mediated immune response, or both, against the desired antigen, 15 whereby the vertebrate is protected from disease 20 caused by an infectious agent.

9. 12. The method of Claim 8, wherein the DNA transcription unit is of nonretroviral origin.

10. 13. The method of Claim 12, wherein the mucosal surface 25 is a nasal mucosal surface.

11. 14. The method of Claim 13, wherein the infectious agent 9 is a virus.

15. The method of Claim 13, wherein the virus is an influenza virus.

16. The method of Claim 14, wherein the desired antigen is an influenza virus hemagglutinin.

17. The method of Claim 9, wherein the vertebrate is a mammal.

5 18. The method of Claim 17, wherein the mammal is a human.

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